

## CLAIMS

1. A method for preventing or ameliorating chemotherapeutic agent-induced thrombocytopenia, comprising administering to a patient in need thereof an effective amount of a thiol-based compound or composition prior to, concurrently with, or following the administration of a chemotherapeutic agent or chemotherapeutic agents.

2. The method according to claim 1 wherein the patient in need thereof does not receive a blood brain barrier disruption procedure.

3. The method according to claim 1 wherein the thiol-based compound is administered intravenously.

4. The method according to claim 1 wherein the thiol-based compound is administered intra-arterially.

5. The method according to claim 1 wherein the thiol-based compound is administered prior to the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

6. The method according to claim 1 wherein the thiol-based compound is administered concurrently with the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

7. The method according to claim 1 wherein the thiol-based compound is administered following the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

8. The method according to claim 7 wherein the thiol-based compound is administered at least 30 minutes following the completion of the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

9. The method according to claim 7 wherein the thiol-based compound is administered at least 1 hour following the completion of the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

10. The method according to claim 7 wherein the thiol-based compound is administered at least 2 hours following the completion of the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

11. The method according to claim 7 wherein the thiol-based compound is administered at least 4 hours following the completion of the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

12. The method according to claim 7 wherein the thiol-based compound is administered at least 6 hours following the completion of the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

13. The method according to claim 7 wherein the thiol-based compound is administered at least 8 hours following the completion of the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

14. The method according to claim 1 wherein the thiol-based compound is selected from the group consisting of sodium thiosulfate, N-acetylcysteine, glutathione ethyl ester, glutathione, D-methionine, cysteamine, cystamine, aminopropylmethylisothiurea, and Ethylol, and combinations thereof.

15. The method according to claim 1 wherein the thiol-based compound is sodium thiosulfate.

16. The method according to claim 1 wherein the thiol-based compound is N-acetylcysteine.

17. The method according to claim 1 wherein the thiol-based composition comprises sodium thiosulfate and N-acetylcysteine.

18. The method according to claim 1 wherein the chemotherapeutic agent is an alkylating agent.

19. The method according to claim 17 wherein the alkylating agent is a platinum-containing alkylating agent.

20. The method according to claim 18 wherein the platinum-containing alkylating agent is selected from the group consisting of cisplatin, carboplatin, and oxyplatin.

21. The method according to claim 1 wherein the chemotherapeutic agents comprise cyclophosphamide, carboplatin and etoposide phosphate.

22. The method according to claim 1 wherein the patient in need thereof has a tumor in the head or neck.

23. The method according to claim 1 wherein the patient in need thereof is a human.

24. The method according to claim 23 wherein the thiol-based compound is sodium thiosulfate.

25. The method according to claim 24 wherein the chemotherapeutic agents comprise cyclophosphamide, carboplatin and etoposide phosphate.

26. The method according to claim 24 wherein sodium thiosulfate is administered at a dosage of 15-20 grams/m<sup>2</sup>.

27. The method according to claim 26 wherein sodium thiosulfate is administered intravenously.

28. The method according to claim 27 wherein sodium thiosulfate is administered at least 4 hours following the administration of the chemotherapeutic agent or at least one of the chemotherapeutic agents.

29. The method according to claim 1 wherein the patient in need thereof has cancer other than brain tumor.